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NUS CORPORATION
PEC DIVISION

Park West Two
Cliff Mine Road
Pittsburgh, PA 15275
412-788-1080

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C-34-9-4-330

September 20, 1984

Project No. S749.20

Mr. Walter S. Graham (3AW23)
U. S. Environmental Protection Agency
Sixth and Walnut Streets
Philadelphia, Pennsylvania 19106

Subject: Draft Final Remedial Investigation Report for the Lackawanna Refuse Site - Response to Comments

Dear Mr. Graham:

The draft final Remedial Investigation (RI) Report for the Lackawanna Refuse Site was submitted to EPA on August 27, 1984. This letter will outline the changes and additions to the Interim RI Report, which was submitted on April 12, 1984, which have been incorporated in the draft final RI report. This letter will also indicate how comments from the Old Forge Toxic Waste Removal Committee (OFTWRC) on the Interim RI Report, contained in a letter dated May 30, 1984 from Mr. Edward Shoener (EPA) to Mr. John Nee (OFTWRC), were addressed.

The following items are changes and additions to the interim report:

1. An accurate topographic map, prepared from aerial photographs and a ground control survey, was used to prepare figures in the draft final report. Figures in the interim report were based on old mine maps that were made before waste disposal activities occurred at the site.

2. Section 3, Subsurface Investigation, was expanded, and the results of the investigation are discussed in greater detail. Additions included sections on leachate generation, groundwater chemistry, and shallow landfill waste exploration (test pits). Geologic cross sections of the site, based on the new topographic map, were also added.

3. Section 7, Analytical Results, and Appendix D, Analytical Data, were expanded because of the additional sampling that was performed after the interim report was submitted. Also, some analytical data had not been received from the laboratories in time for inclusion in the interim report. Additional data include the following:

    - Surface soil samples - April, 1984
    - Test boring soil samples - November, 1983

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- Yard soil samples - May, 1984
- Surface water samples - March and April, 1984
- Seep and stream sediment samples - April, 1984
- Test pit soil and water samples - April, 1984
- Groundwater samples - March, 1984

4. Section 8, Quality Assurance Review. The validation of organic analyses for seep and stream sediment and soil samples was changed from acceptable with exceptions and questionable to unacceptable. This is discussed in detail in Section 8.10.

5. Appendix A, Glossary of Terms, was expanded.

6. Appendix C, Index of Sampling Locations, was added. All samples were given a unique number so that the results and sampling locations could be more easily referenced. Appendix C from the interim report was incorporated into Appendix B.

7. Appendix E, Boring Logs, was added. It includes boring logs from test borings and borings for monitoring wells.

8. Appendix F, Borehole Geophysics, was added. It includes the results of geophysical logs of selected borings

The following are responses to comments from the Old Forge Toxic Waste Removal Committee on the interim report:

1. Comment: Page ES-3, first paragraph under Surface Water - Better define the intermittent flow of St. Johns Creek and its tributaries.

   Response: Page ES-3, first paragraph under Surface Water - There is no shallow water table on site that could support a continuously flowing stream. This is why St. Johns Creek and its tributaries are intermittent streams that frequently flow, but not continuously, throughout the year.

2. Comment: Page ES-3, second paragraph under Surface Water - Explain what is meant by "contaminated".

   Response: Page ES-1, Introduction - One of the objectives of the Remedial Investigation was to characterize the extent and nature of contamination (compounds that don't occur naturally at the site or that occur at levels greater than those of the surrounding area) associated with the site.

AR301129

3. Comment: Chapter 1 - Throughout this chapter and other parts of the report it is stated that wastes were "allegedly" dumped along the access road and in the borehole pit. The word "allegedly" should be deleted.

   Response: The word "allegedly" was either deleted or changed to "reportedly" throughout the report.

4. Comment: Chapter 1, Introduction - The maps should contain better offsite reference points.

   Response: Figure 1-2 and other site maps were revised based on the new topographic map. Offsite reference points included on Figure 1-2 include St. Johns Creek, Keyser Avenue, the Villa Corporation trailer park, the PP&L power line, and various buildings and roads in the vicinity of the site.

5. Comment: Page 1-1, last paragraph - The statement should be changed to read "Hunting has occurred at the site and continues to occur in areas around the site".

   Response: This change was made.

6. Comment: Page 1-1, last paragraph - The population around the site should be better defined.

   Response: Time and resources did not permit an in-depth evaluation of the population in the site vicinity, so no change was made from the population data in the interim report. This information was not critical to our evaluation of data collected during the RI. If this information is still desired it can probably be obtained from a local source such as a public library.

7. Comment: Page 1-4, first paragraph - Delete the words "potentially" hazardous and "suspected" dumping.

   Response: This change was made.

8. Comment: Page 1-4, first bullet - Define direct contact.

   Response: Page 1-4, first bullet - Direct contact refers to actual physical contact with the wastes.

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9. Comment: Page 2-7, first paragraph under Surface Water Sampling - Because of the large number of seeps and the formation of new seeps, it should not be stated that "all seeps" were sampled.

   Response: Page 2-7, first paragraph under Surface Water Sampling - Surface water samples were collected from individual seeps and/or seep collection areas, ditches, and streams that were flowing at the site.

10. Comment: Page 2-8, Section 2.3.5 - What is the HSL?

    Response: HSL is the abbreviation for Hazardous Substances List which was spelled out rather than abbreviated throughout the report.

    Page 2-8, Section 2.3.4, last paragraph - The HSL is a list of 133 organic compounds and 21 metals developed by the EPA to include compounds from classes of pollutants that are commonly encountered. The list includes all compounds designated as priority pollutants plus 21 other organics and metals.

11. Comment: Chapter 3 - Discuss the possibility of mine cave-ins.

    Response: Page 3-12, second paragraph - The deep mining activities have been the source of subsidence problems in the anthracite field. This subsidence has not ceased, as evidenced by occassional events and current backfilling projects to prevent future occurrences. During subsidence the roof of the mined out areas collapses into the void left by mined coal. Numerous fractures develop above the mined coal and can influence percolation of groundwater and leachate. This problem is compounded by the multiple seam mining at the site.

    Page 3-41, last bullet - The site is located in an area of deep and surface mining; therefore, there is a potential for mine subsidence to occur. Subsidence should be considered in development of remedial alternatives to the site.

12. Comment: Chapter 3 - Discuss the possibility of pockets of contaminated water accumulating in the mines.

    Response: Page 3-12, third paragraph - The subsidence and resulting fractures have had a severe impact on the groundwater hydrology. Any major aquifers that would have existed prior to mining have been dewatered or eliminated. Occasional "perched" zones where groundwater accumulates above unfractured confining beds (typically in the coal zones) are the only remnants of the aquifer system. These sporadic zones would probably be too small to accumulate large concentrations of contaminants from the site.

AR301131

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13. Comment: Chapter 3 - Discuss how the leachate is generated in more detail.

Response: Page 3-30, Section 3.4.1.1 - Leachate is a solution of dissolved and finely suspended solid matter from waste products. Leachate is formed by percolation of surface water or groundwater through the waste material. The composition and characteristics of leachate are highly variable and are dependent upon the type of wastes present in the landfill.

At the Lackawanna Refuse Site, leachate is produced from surface water and rainfall infiltration that percolates through the mine spoil cover. The percolating water forms leachate that emanates as springs through the spoil and also percolates into the lower "perched" water zones, finally entering the mine pool.

Appendix A, page A-3 - Leachate is a solution of dissolved and finely suspended soild matter from waste products. Leachate is formed from water percolating through solid waste.

14. Comment: Chapter 3 - The questionable accuracy of mine maps should be noted.

Response: Page 3-10, last sentence and page 3-12, first paragraph - Because of discrepancies that exist between the mine maps and available surface maps, and the questionable accuracy of mine maps, no deliberate attempt was made to intersect pillars or rooms when drilling. Additionally, the survey accuracy of the maps, developed decades ago, are probably not as accurate as modern maps.

15. Comment: Chapter 3 - Better define what is meant by groundwater.

Response: Appendix A, page A-3 - Groundwater is water beneath the earth's surface that flows through soils and rocks. At the Lackawanna Refuse Site, groundwater occurs in unconsolidated soils, in mine voids, and in the deep mine pool. At this site, the groundwater source is seepage through spoil, soil, and rocks into the subsurface.

16. Comment: Chapter 4 - Explain how the red flags at the site relate to the magnetometer survey.

Response: Page 4-1, Section 4.2.1, first paragraph - Red flags were placed every 20 feet to establish a grid. The flags were used as reference points so that when a magnetometer reading was taken, it was known exactly where the reading was taken. A magnetometer reading was taken at every flag.

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17. Comment: Chapter 5 - The odors associated with the seeps should be mentioned.

    Response: Page 5-4, last paragraph - Although odors were detected on site, the Tenax sampling reinforced the earlier conclusion, based on real-time monitoring, that a respiratory hazard did not appear to exist from organic vapors.

18. Comment: Table 5-3 - Why is the average overall higher for some compounds than the average for the site, woods and school?

    Response: Table 5-3 - Average overall includes samples collected during the Health and Safety Reconnaissance and special samples collected from private homes and the Exxon station.

19. Comment: Table 5-1 - Clarify if the ACGIH TLV's are being used for comparison purposes or are some other standards, i.e., OSHA, NIOSH, standards being used?

    Response: Page 5-4, last sentence - These levels are set by the American Conference of Governmental Industrial Hygienists (ACGIH) and reflect the most recent knowledge on both acute and chronic effects of specific compounds.

    Page 5-5, Table 5-1, footnote - TLV = Threshold Limit Value (Threshold Limit Values for Chemical Substances in the Work Environment Adopted by ACGIH for 1983-1984).

20. Comment: Chapter 7 - Create an index listing the sample numbers from each sampling location so the detailed sampling results presented in Appendix D can be more easily referenced.

    Response: Appendix C, Index of Sampling Locations, lists sample numbers and descriptions of soil, surface water, and sediment sampling locations. Also included is the figure number where sampling locations are shown graphically.

21. Comment: Chapter 8 - Clarify the meaning of "acceptable".

    Response: Page 8-1, first paragraph - All available data were used to determine its quality for use in evaluating the site, based on the accuracy of the results. This chapter addresses the performance of the laboratories that analyzed the samples, but does not address the environmental or health-related impacts of the chemicals found.

    Page 8-1, fourth paragraph - Acceptable means that the accuracy of the results is acceptable.

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If you have any questions or comments regarding this submittal, please feel free to call me.

Very truly yours,

Richard M. Ninesteel

Richard M. Ninesteel, P. E.
Project Manager

RMN/pal

cc: Mr. Abe Ferdas

AR301134